

Pooley (J. R.)

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Ophthalmic Surgeon to Charity Hospital and Assistant Surgeon to the New
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Putnam's Office.
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Washington, D.C.

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THREE CASES OF FOREIGN BODIES IN THE EYE.

By THOMAS R. POOLEY, M.D., of New York, Ophthalmic Surgeon to Charity Hospital and Assistant Surgeon to the New York Ophthalmic and Aural Institute.

It is my intention in this short paper to present to the Society the details of three interesting cases of foreign bodies in the eye, which have come under my observation during the past year, together with some remarks on the subject of such injuries as they may naturally suggest.

A discussion of all the questions of diagnosis, prognosis, and treatment of cases in which there is a lodgement of a foreign body within the eye, would require more time than I should be willing to trespass upon your forbearance, but I hope, in the remarks upon the cases which I shall present, to bring out some of the more important of them. Before proceeding to the report of my cases, I beg to say a word upon what may seem to be a simple matter, but which is really of the utmost importance. I refer to the necessity of examining with the greatest care every eye which has been struck by a foreign body. The wound through which it may enter the eye is often so small as to entirely escape detection, unless the eye be examined by oblique illumination, and even then it is sometimes difficult to find. Every practitioner, by a very little outlay of time and trouble, can make himself familiar with this method of examining the anterior parts of the eye.

Case 1.—Foreign body in the iris.

Henry Hovel, of Stapleton, S. I., was admitted to the Ophthalmic and Aural Institute, July 3, 1874. He is a carpenter by trade, and one week before, while attempting to cut of a nail with a chisel, the edge of the latter broke and a small piece entered the right eye. The condition of the eye at the time of his visit to the clinic is as follows: By the aid of oblique illumination a slight scar can be seen about the middle and inner side of the sclero-corneal margin. There is intense circumcorneal injection and iritis. The pupillary margin of the iris is covered with large, bright-colored vessels, forming a complete vascular ring. There is one broad tag of synechia near the foreign body. The latter, surrounded by a plastic exudation, is situated below, and inwards about midway

between the pupillary and the ciliary margins, and is firmly imbedded in the iris. It gives a somewhat metallic lustre. There is slight hypopyon. As it was evident that the eye would be lost by suppurative iritis unless the foreign body was removed, I proposed to the patient to make the attempt at once, to which he promptly acceded.

The operation was accomplished by opening the anterior chamber with an ireectomy knife opposite the foreign body, and as the wound proved too small, enlarging it with the scissors. After several unsuccessful attempts, I was so fortunate as to grasp the foreign body with Liebreich's ireectomy forceps, and safely remove it.

This iris being somewhat lacerated and prolapsing, was now seized by the forceps and cut off, making a pear-shaped pupil.

No reaction whatever followed the operation. The wound healed nicely, the iritis at once began to subside, and on the 20th of July the patient was discharged from the hospital, quite well. The sight of the right eye was $\frac{2}{7}$, and of the left $\frac{2}{8}$, with hyperopia of $\frac{1}{4}$. About two weeks later I saw the patient and the vision of the operated eye was quite equal to that of the other.

The chief point of interest in this case is the rapid subsidence of the iritis after the removal of the foreign body—notwithstanding it was already suppurative, and there was hypopyon. In this instance I succeeded in removing the foreign body without incising the iris, although it was thought desirable afterwards to excise the portion which prolapsed. It will usually be found that the foreign body is firmly impacted in the iris, that the best method of operating is to make ireectomy of the portion of the iris in which it is lodged. I found Liebreich's lever forceps of great service, and succeeded in grasping the foreign body with them after I had failed with ordinary ones, and Knapp's hook.

Case 2.—Foreign body in the anterior chamber, which had been in the eye for fourteen years.

Leonard Becker, æt. 42, was admitted to the New York Ophthalmic and Aural Institute, August 17, 1874, with the following history: Fourteen years ago, while working at his trade (blacksmithing), and striking with a sledge-hammer, a piece of steel flew off and struck the right eye. The injury was followed by severe inflammation, which lasted for about six weeks, and resulted in the destruction of all useful vision. The eye remained free from pain or irritation for ten years, after which time it became inflamed and painful, and continued so for two or three months,

when it again became quiet. One year ago another attack ensued which lasted for several weeks; after this had subsided, the eye was again free from all inflammatory symptoms until three weeks since. At this time it once more became painful, and now the other eye likewise became weak and irritable, although it manifested no active signs of disease. On admission to the hospital, the right eye showed ciliary injection, but no tenderness upon pressure. Tension normal, pupil small, and some remnants of lens capsule in its area. The iris was discolored and tremulous, the lens being absent. No ophthalmoscopic image of the fundus could be obtained. Counts fingers with difficulty at 2"

Cataract glasses do not materially improve his sight. Lying at the bottom of the anterior chamber there is a small, grayish body, which is to be distinctly seen by oblique illumination. With lateral movements of the head it changes its position from one side of the anterior chamber to the other, and upon a sudden movement of the head backward it entirely disappeared from the anterior chamber (most likely through the pupil into the vitreous chamber); it would return as suddenly when the patient was directed to stoop down.

In the left eye no objective symptoms of sympathetic inflammation were to be found, but there was photophobia, lachrymation, and asthenopia, when the patient used the eye for reading S = $\frac{2}{5}$ %. Fundus and media normal. As there was evident sympathetic irritation of the other eye, I determined to operate at once by first attempting to remove the foreign body, and if I failed in this to enucleate the eye. When the patient was placed upon the operating chair the foreign body again disappeared into the depth of the eye, and it was necessary to make him hang his head downward to bring it once more in the anterior chamber. To prevent any such occurrence happening again, the back of the chair was raised, and the operation proceeded with. The anterior chamber was entered below with an iridectomy knife, and attempts made to seize the body with forceps, or to draw it into the wound with Knapp's hook. To facilitate these endeavors the wound was enlarged with Graefes cataract knife, but they all proved fruitless; and the iris was detached from its ciliary margin, so that the foreign body fell back upon the ciliary processes, and some fluid vitreous escaped. Enucleation of the now somewhat collapsed bulb was then made by freeing the conjunctiva and muscles from the inner side, cutting the nerve, then grasping it with the forceps, and continuing the dissection from behind, forward. This method of operating will be

found to facilitate the removal of a flaccid eyeball, and lessens the liability of cutting the sclerotic

Upon making a section of the globe after its removal, a large spicula of steel, or stone, it was difficult to say which, so altered was it by its long residence in the fluids of the eye, was found lying on the ciliary processes.

The wound healed by first intention, and the patient was discharged on the third day after the operation. All symptoms of sympathetic irritation of the left eye had entirely disappeared, and vision had increased to $\frac{2}{3}$ of the normal.

Cases are not wanting in literature in which a foreign body has remained for a long time in the interior of the eye without setting up sympathetic inflammation in the other.

In our case, after the subsidence of the inflammation and pain incident to the injury, the eye was free from all irritation for ten years. This immunity of the second eye from irritation and inflammation of a sympathetic nature depends upon the position of the foreign body. So long as the ciliary body or processes are not involved, either by the foreign substance coming in contact with them, or by a scar situated in this part of the eye, sympathetic trouble is not likely to occur. In the case which we have just related the eye was free from reaction for ten years after the injury. It is probable that all this time the foreign substance was impacted in the lens, and that the first inflammatory attack only came on after it had undergone slow absorption, allowing the foreign body to become dislodged, to fall against the ciliary region of the eye, provoking irido-eyclitis, which subsided again when the foreign body had gravitated to the posterior portion of the eye. The subsequent attacks must be attributed to the foreign body again coming in contact with the ciliary bodies while gravitating from one part of the eye to the other, at last provoking sympathetic irritation in the fellow eye.

If I could have succeeded in removing the foreign body, this might have arrested the progress of the sympathetic trouble in the other eye, which was only functional, and had not yet given rise to any inflammatory lesion. This was rendered difficult by the ease with which the body moved about in the anterior chamber. Still I believe that if I had made a larger wound at first with a Graefes knife it might have been accomplished.

Since the eye was lost for all useful vision, however, it was on the whole the safest to enucleate it, and this might have been necessary even if I had removed the foreign body, had the inflamma-

tion in it continued, and the sympathetic trouble in the other not been arrested.

The gravitation of the foreign body from the anterior to the posterior chamber through the pupil could only be accounted for by the absence of the lens, allowing free communication between the anterior chamber and the vitreous, which was shown to be the case by the tremulous iris. It is the only example of the kind which has come under my notice. In conclusion, I would call attention to the method of removing a collapsed eyeball, referred to in reporting the case, without claiming any originality for it. The method may have been resorted to by others, and, for all I know to the contrary, have been described.

Case 3.—Penetrating wound of the sclera: Foreign body in the eye. Connective tissue opacities in the vitreous. Detachment of the retina.

W. T., twenty-eight years of age, was sent to me by his family physician from Columbus, Ohio, on the 23d of November, 1874.

Four weeks before I saw him he was out shooting with a friend. He was some distance in front of his comrade, and flushed a bird; just as he raised his gun to fire, and while he was taking aim, his friend discharged his gun, which was loaded with fine No. 3 shot. Several of the shot struck him about the face, and one upon the left eye. He felt severe pain, and immediately found that he had almost lost the sight in it—it seemed as though there was a veil before his eye—and he could only see in the outer and lower part of the visual field. His physician, to whom he went at once, thought that the shot had not entered the eye, but had gone into the orbit, and this was the opinion of others who saw the case with him. Atropine was instilled, and rest in a darkened room enjoined. The eye continued to be inflamed, and painful for about ten days, and then it became free from pain, but the sight did not improve.

His condition when I saw him was as follows: There was a scar on the lower lid near the inner angle of the eye where the shot had entered. When the eye was directed strongly upward and outward a small puckered cicatrix in the sclerotic came into view.

The eye was wonderfully free from irritation. There was no circumcorneal injection, nor undue conjunctival redness. The iris was bright, the pupil responded to light, anterior chamber of normal depth; there was no pain on pressure over the ciliary region, nor abnormality of tension. The field of vision was found to fail

entirely upward and inward. He could count fingers at 6" in the outer side of the field. He was entirely free from pain, or annoyance of any kind, except the failure of sight. With the ophthalmoscope no distinct view of the fundus was obtainable, but when the eye is directed strongly downward there is a slight red reflex.

The vitreous is occupied by radiating fan-like opacities which have very much the appearance of detachment of the retina. The latter condition was suspected, but could not be clearly demonstrated on account of the condition of the vitreous. When the patient looks downward and inward a whitish cord-like opacity can be traced from the sclerotic wound through the vitreous obliquely upward. I had no hesitation in expressing the opinion that the shot had penetrated the globe, was lodged in the vitreous, or imbedded in one of the tunics of the eyeball. All the symptoms, both subjective and objective, argued in favor of such a diagnosis. The right eye was free from pain, lachrymation, photophobia, or any other symptoms of sympathetic irritation. V=1—Rm.

I saw the patient again several times, but there was no material difference in the condition of the eye.

I advised against enucleation of the eye for the present, for the following reasons:

1. The wound made by the penetration of the shot was very remote from the ciliary region, which is the vulnerable part in producing sympathetic inflammation.

2. There was no evidence of irido-cyclitis, or other painful inflammatory process in the injured eye, which was not painful to the touch, conditions which are looked upon as necessary to provoke sympathetic trouble in the other eye.

3. There were no symptoms of sympathetic affection of the second eye.

4. The foreign body was of a such a nature, perfectly smooth and round, that it would be less liable to awaken irritation and inflammation than a more irregular one, and more likely to become encysted.

The patient consulted a number of other gentlemen, and there was a division of opinion about the propriety of enucleation. The advice in favor of operation, however, prevailed, and the eye was removed, November 28. I had an opportunity of seeing it afterwards at the New York Ophthalmological Society. There were two small shot in the vitreous and organized opacities in the vitreous humor; the course of the shot through the vitreous which had been observed with the Ophthalmoscope was very apparent,

as a cord-like opacity of connective tissue. There was no detachment of the retina. I did not ascertain whether both the shot had entered at the same place or whether there was another scar in the sclerotic.

Four years ago I observed a case almost exactly similar to the one just described—which was published in the *New York Medical Journal* for September, 1871.

In this case the patient was shot in the face by a pistol loaded with fine shot, one of which penetrated the right upper eyelid, and entered the eye just behind the sclero corneal margin. The injury was followed by hardly any reaction. There was limitation of the F., great impairment of V., and the same opacity of the vitreous humor as in the case now reported.

I had this patient under observation for about three months. There was no irritation nor pain in the injured eye. The other eye was unaffected, and he has never had an unpleasant symptom since in either eye.

When the second case came under my observation I had the curiosity to look up the first one. The patient was kind enough to come to my office from the country, and I had the opportunity of examining his eyes, nearly four years after the accident.

The eye in which the shot is lodged, to all external appearances, looked as normal as the other; it was only possible by the most careful scrutiny to detect the cicatrix marking the site through which it had entered. The pupil was responsive to light, and fingers were counted on the temporal side of the field of V at 5'.

I was encouraged by the experience offered by the observation of this case to express a favorable prognosis, in one so parallel to it in all particulars.

It is true that I did not suspect that more than one of the shot had penetrated the globe, but I do not think, even if I had known this, that it would have altered my *prognosis*.

It is but too true that, in most of the cases in which a foreign body has penetrated the eye we have no other resource than enucleation, which, is rendered imperative, either on account of pan ophthalmitis, or to avert it, or else because of the slower and more dangerous inflammation of the ciliary body, which is the sure precursor of sympathetic inflammation. But there are exceptional cases, to which the case under discussion belongs, in which we ought to pursue a more conservative course. I firmly believe that, in this instance, there was a great probability that the patient might have retained the eye, with its foreign contents, for many

years, and even all his life, with perfect immunity from any sympathetic trouble; and I point to the other case to which I have referred as an argument in favor of such an opinion.

I am by no means in favor of waiting until sympathetic inflammation has declared itself before resorting to enucleation, for experience has too often shown that, when once there is iritis or cyclitis in the second eye, it does not always arrest the disease in its destructive course. Still, I cannot accept the position usually laid down that, so soon as we are sure there is a foreign body in the eye, especially if vision is seriously impaired, we should remove it.

This I would do at once were the eye painful, subject to recurrences of inflammation, or upon the least functional signs of sympathetic disturbance.

It was advanced, as an argument in favor of removing the eyeball in this case, that the patient resided in a town where there was no competent ophthalmologist, and as sympathetic disease is very insidious in its onset, it might be overlooked until too late. I do not believe, however, that sympathetic inflammation of the destructive type ever sets in without the occurrence first of pain, and inflammation of the injured eye, and such an argument, to my mind, is not sufficient reason for scarifying an eye. With strict injunctions to be on the alert for such symptoms, I would have let the patient return home.

In concluding my remarks, I ought to say that, occasionally, when the patient is seen soon after the injury, while the refractive media are still clear, foreign bodies have been removed from the vitreous, not only preserving the eye, but vision as well. Some time ago I assisted Dr. Knapp in an operation where he successfully removed, by means of a hook which he has devised for the purpose, a fragment of gun-cap from the vitreous humor, through a wound in the sclerotic. I have, too, quite lately, through the kindness of the same gentleman, seen a case where a piece of gun-cap was lodged in the eye, which might in all probability have been removed if the case had been seen forty-eight hours sooner, before the vitreous had become turbid from inflammation. In this case the location of the foreign body was marked by limited tenderness on pressure. After enucleation the foreign body was found embedded in the upper part of the retina, exactly corresponding to the part which was painful to pressure. The case is published in the proceedings of the New York Pathological Society, *Medical Record*, and *New York Medical Journal*, December, 1874.

